MEDLINE

Medline ID:	78170014
Citation:	Wilson PA, Melmed RN, Hampe MM, Holt SJ, *Immunocytochemical study of the interaction of soybean trypsin inhibitor with rat intestinal mucosa.*, Gut **19:** 4, 260-6, Apr, 1978.

Abstract

To investigate further the cause of the pancreatic enlargment induced by orally ingested soybean trypsin inhibitor (STI), antibodies raised against STI and purified by affinity chromatography were used to localise dietary STI in the rat gut by fluorescent immunocytochemical methods. This technique permitted the clear intracellular demonstration of STI in the ileal mucosa of suckling rats. However, in adult rats no entry of STI into mucosal cells of the small intestine could be demonstrated, it being confined to the luminal surface of the mucosa. Although the passage of STI into and across the adult intestinal mucosa could not be excluded through the use of this technique, the results are consistent with an intraluminal mode of action of STI as suggested by Green and Lyman (1972)--namely, that the pancreatic enlargement caused in sensitive species results from the inhibition of trypsin (which acts as the physiological inhibitor of the mucosal secretion of pancreotrophic hormones), thus resulting in the uninhibited secretion of these hormones.

Type: Journal Article
ISSN: 0017-5749
Language: eng
GUT

CAS Registry/EC Number

0 (Trypsin Inhibitors)

URL from COS to bookmark this record:	http://medline.cos.com/cgi-bin/getRec?78170014

Medical Subject Headings (MeSH)

You may use the MeSH terms to find similar articles.

- Animal
- Fluorescent Antibody Technique
- Hyperplasia
  - Chemically Induced
- Hypertrophy
  - Chemically Induced

MEDLINE

Medline ID:	82130767
Citation:	Flavin DF, *The effects of soybean trypsin inhibitors on the pancreas of animals and man: a review.*, Vet Hum Toxicol **24:** 1, 25-8, Feb, 1982.

Abstract

Human trypsin is more resistant to inhibition than is the trypsin of other mammalian species. The effect on human trypsin of soybean trypsin inhibition in soy protein does not appear to be a potential hazard to man. Therefore, the elimination of STI does not seem to be necessary for humans. In animal diets, however, pancreatic toxicity must be considered whenever soybean protein is utilized. Soybeans should be treated to increase their nutritional benefits and decrease any animal health risks (27-29). This will insure healthy control subjects in laboratory situations and avoid misinterpretation of pathologic data. The treatment suggested is heat (2,18,25,30-32) since heat will destroy most of the soybean trypsin inhibitors. Additional supplementation is required following heat treatment for amino acids (33,34) such as methionine, valine, and threonine; for choline (2,14,35); and for the minerals zinc (36) and calcium (11,34). Excessive heat must be avoided since it will decrease the nutritional value of soybean protein and increase lysinoalanine, a nephrotoxic substance (12). Finally, the use of STI as a promotor in the study of potential pancreatic carcinogens may prove beneficial for cancer research (24,25) and might be considered in the future.

Type: Journal Article/Review
Number of References: 36
ISSN: 0145-6296
Language: eng
VETERINARY AND HUMAN TOXICOLOGY

CAS Registry/EC Number

0 (Trypsin Inhibitor, Bowman-Birk Soybean)
0 (Trypsin Inhibitors)
9088-41-9 (Trypsin Inhibitor, Kunitz Soybean)

URL from COS to bookmark this record:	http://medline.cos.com/cgi-bin/getRec?82130767

Medical Subject Headings (MeSH)

You may use the MeSH terms to find similar articles.

☐ Animal

MEDLINE

Medline ID:	79153375
Citation:	Krogdahl A, Holm H, *Inhibition of human and rat pancreatic proteinases by crude and purified soybean proteinase inhibitors.*, J Nutr **109:** 4, 551-8, Apr, 1979.

Abstract

Effects of proteinase inhibitors on total proteolytic activity and trypsin and chymotrypsin activity in human pancreatic juice were determined separately. Purified inhibitors as well as crude extracts of raw soybeans completely inhibited trypsin and chymotrypsin activity while 40 to 50% of the total proteolytic activity remained. Inhibition experiments with 1,10-o-phenanthroline showed that this residual proteolytic activity was due mainly to carboxypeptidase A and B. Comparative studies with rat pancreatic enzymes demonstrated certain similarities between the corresponding enzymes from rat and man. However, differences were revealed which indicate that the rat enzymes must be used with great caution when applied as models for the human proteinases when studying effects of soy bean inhibitors.

Type: Journal Article
ISSN: 0022-3166
Language: eng
JOURNAL OF NUTRITION

CAS Registry/EC Number

0 (Phenanthrolines)
0 (Protease Inhibitors)
9088-41-9 (Trypsin Inhibitor, Kunitz Soy bean)
EC 3.4 (Peptide Hydrolases)
EC 3.4.- (Carboxypeptidases)
3.4.21.1 (Chymotrypsin)
3.4.21.4 (Trypsin)

URL from COS to bookmark this record:	http://medline.cos.com/cgi-bin/getRec?79153375

Medical Subject Headings (MeSH)

You may use the MeSH terms to find similar articles.

- ☐ Animal
- ☐ Carboxypeptidases
  - ☐ Antagonists and Inhibitors

MEDLINE

Medline ID:	84023099
Citation:	Liener IE, *Naturally occurring toxicants in foods and their significance in the human diet.*, Arch Toxicol Suppl **6:**, 153-66, , 1983.

Abstract

Among the many biologically active and potentially toxic factors known to be present in plant foodstuffs normally consumed by man, those that are present in legumes have received the most attention. Two categories of legume toxins will be considered - those whose effects have been extensively studied in experimental animals but whose significance in man must remain open to conjecture, and those which are known to produce toxic effects in man but whose identity remains uncertain because similar effects are not readily reproduced in animal models. The protease inhibitors have, over the years, been the object of much study in experimental animals where they have been observed to have an adverse effect on growth and to cause pancreatic enlargement. The relevance of these observations to human nutrition remains obscure, however, because of our lack of knowledge concerning the effect of soybean trypsin inhibitors on the human pancreas. Lectins from certain legumes such as the common bean (Phaseolus vulgaris) have been shown to be toxic to animals upon oral ingestion presumably because of the damage which they inflict upon binding to the cells lining the intestinal mucosa. Lectins may therefore be responsible for reported cases of human intoxication associated with the consumption of inadequately cooked beans. Lathyrism and favism are diseases in man which are associated with the consumption of Lathyrus sativus and Vicia faba respectively. Evidence leading to the probable identification of the causative factors of these diseases and the steps necessary for their elimination will be discussed.

ISSN: 0171-9750
Language: eng
ARCHIVES OF TOXICOLOGY. SUPPLEMENT. ARCHIV FUR TOXIKOLOGIE. SUPPLEMENT

Grant number:	AM 18324\AM\NIADDKPT(1)=Journal Article

CAS Registry/EC Number

0 (Lectins)
0 (Protease Inhibitors)

URL from COS to bookmark this record:	http://medline.cos.com/cgi-bin/getRec?84023099

Medical Subject Headings (MeSH)